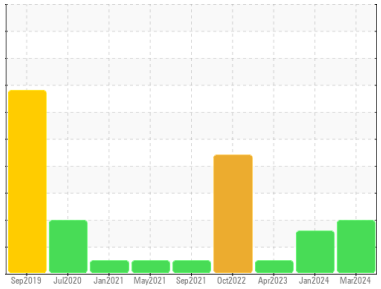
# OIL ANALYSIS REPORT

Sample Rating Trend




ISO

Machine Id
**DR167**
Component
**Hydraulic System**
Fluid
**PETRO CANADA ENVIRON MV 46 (80 LTR)**

## DIAGNOSIS

**Recommendation**
The filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

**Wear**
All component wear rates are normal.

**Contamination**
There is a moderate amount of silt (particulates < 14 microns in size) present in the oil.

**Fluid Condition**
The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **PC0077065** | PC0080573 | PC0071494 |
| Sample Date | | Client Info | | **18 Mar 2024** | 18 Jan 2024 | 04 Apr 2023 |
| Machine Age | hrs | Client Info | | **14829** | 14622 | 13976 |
| Oil Age | hrs | Client Info | | **0** | 250 | 0 |
| Oil Changed | | Client Info | | **Changed** | Changed | Not Changd |
| Sample Status | | | | **ABNORMAL** | ABNORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Water | | WC Method | >0.1 | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185(m) | >20 | **<1** | <1 | <1 |
| Chromium | ppm | ASTM D5185(m) | >10 | **0** | 0 | 0 |
| Nickel | ppm | ASTM D5185(m) | >10 | **0** | <1 | <1 |
| Titanium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185(m) | >10 | **0** | <1 | <1 |
| Lead | ppm | ASTM D5185(m) | >10 | **0** | <1 | 0 |
| Copper | ppm | ASTM D5185(m) | >75 | **<1** | <1 | <1 |
| Tin | ppm | ASTM D5185(m) | >10 | **0** | 0 | 0 |
| Antimony | ppm | ASTM D5185(m) | | **<1** | 0 | 0 |
| Vanadium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Beryllium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |

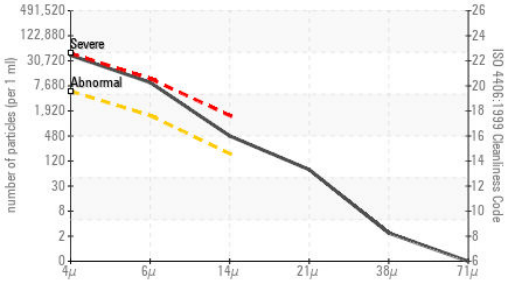
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185(m) | 0 | **<1** | <1 | <1 |
| Barium | ppm | ASTM D5185(m) | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185(m) | 0 | **0** | 0 | 0 |
| Manganese | ppm | ASTM D5185(m) | 0 | **0** | 0 | 0 |
| Magnesium | ppm | ASTM D5185(m) | 0 | **<1** | <1 | 0 |
| Calcium | ppm | ASTM D5185(m) | 0 | **<1** | <1 | 0 |
| Phosphorus | ppm | ASTM D5185(m) | 650 | **581** | 611 | 645 |
| Zinc | ppm | ASTM D5185(m) | 0 | **7** | 7 | 10 |
| Sulfur | ppm | ASTM D5185(m) | 1420 | **1349** | 1514 | 1402 |
| Lithium | ppm | ASTM D5185(m) | | **10** | 9 | <1 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >20 | **0** | 0 | 0 |
| Sodium | ppm | ASTM D5185(m) | | **<1** | 0 | <1 |
| Potassium | ppm | ASTM D5185(m) | >20 | **1** | 1 | 0 |

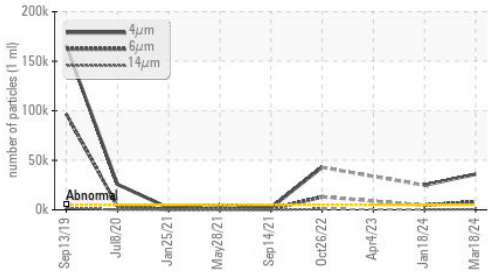
| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >5000 | ▲ **35964** | ▲ 24838 | --- |
| Particles >6µm | | ASTM D7647 | >1300 | ▲ **8073** | ▲ 4626 | --- |
| Particles >14µm | | ASTM D7647 | >160 | ▲ **423** | ● 180 | --- |
| Particles >21µm | | ASTM D7647 | >40 | ● **66** | 30 | --- |
| Particles >38µm | | ASTM D7647 | >10 | **2** | 2 | --- |
| Particles >71µm | | ASTM D7647 | >3 | **0** | 1 | --- |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | ▲ **22/20/16** | ▲ 22/19/15 | --- |

# OIL ANALYSIS REPORT

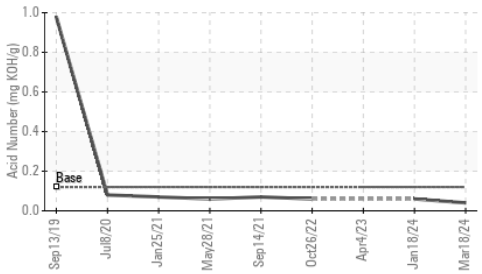
Particle Count



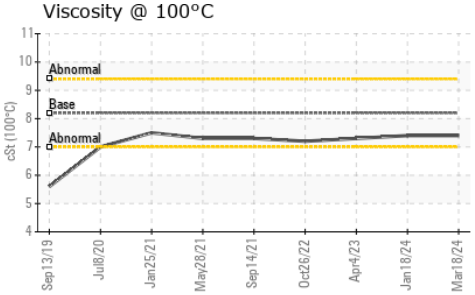

Particle Trend



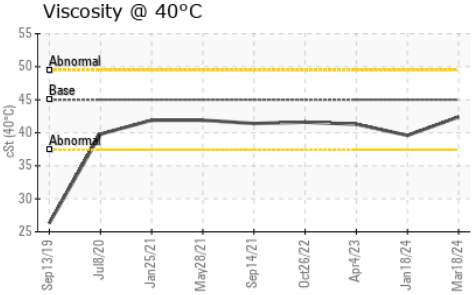

Acid Number




Viscosity @ 100°C



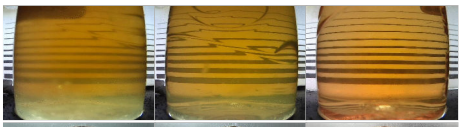

Viscosity @ 40°C




| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D974* | 0.12 | **0.04** | 0.06 | --- |

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | Visual* | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | Visual* | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | Visual* | NONE | **NONE** | NONE | NONE |
| Silt | scalar | Visual* | NONE | **NONE** | NONE | NONE |
| Debris | scalar | Visual* | NONE | **VLITE** | NONE | NONE |
| Sand/Dirt | scalar | Visual* | NONE | **NONE** | NONE | VLITE |
| Appearance | scalar | Visual* | NORML | **NORML** | NORML | NORML |
| Odor | scalar | Visual* | NORML | **NORML** | NORML | NORML |
| Emulsified Water | scalar | Visual* | >0.1 | **NEG** | NEG | NEG |
| Free Water | scalar | Visual* | | **NEG** | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D7279(m) | 45.0 | **42.4** | 39.6 | 41.3 |
| Visc @ 100°C | cSt | ASTM D7279(m) | 8.2 | **7.4** | 7.4 | 7.3 |
| Viscosity Index (VI) | Scale | ASTM D2270* | 158 | **140** | 155 | 141 |

| SAMPLE IMAGES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Color | | | |  | | |
| Bottom | | | |  | | |

ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
**Sample No.** : PC0077065
**Lab Number** : 02624959
**Unique Number** : 5750078
**Test Package** : IND 2 ( Additional Tests: KV100, VI )
**Received** : 27 Mar 2024
**Tested** : 28 Mar 2024
**Diagnosed** : 28 Mar 2024 - Kevin Marson

*To discuss this sample report, contact Customer Service at 1-800-268-2131.*
*Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.*
*Validity of results and interpretation are based on the sample and information as supplied.*

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